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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/578,822

05/09/2006

Euan Christopher Smith

1365.106US1

5154

21186

7590

07/09/2010

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.

P.O. BOX 2938

MINNEAPOLIS, MN 55402

EXAMINER

STONE, ROBERT M

ART UNIT

PAPER NUMBER

2629

NOTIFICATION DATE

DELIVERY MODE

07/09/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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request@slwip.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/578,822	<b>Applicant(s)</b> SMITH ET AL.	
	<b>Examiner</b> Robert M. Stone	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8 is/are allowed.
- 6) ☒ Claim(s) 9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

1. The amendment filed on 6 April 2010 has been entered and considered by the examiner.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Smith* (US 2005/0140610) in view of *Nimmer* (US 6,980,182).

As to **claim 9**, *Smith* (Figs. 2a and 4-6c) discloses a method of controlled current driving of a passive matrix organic light emitting diode (OLED) display (controllable current generator provides controlled variable currents for driving the passive matrix OLED [abstract, 0021]), said display having a matrix of OLED pixels addressed by row and column electrodes (passive matrix 502 of OLEDs 312 driven by column lines 508 and row lines 512 [0049, 0050, 0053]; Figs. 3 and 5), the method comprising driving a plurality of said column electrodes with a plurality of controlled column currents (column electrodes 508a,508b are driven by the current drivers 506a,506b according to controlled column currents output

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from the current setting resistors 540,542,544 to input line 526 [0050-0052] wherein the column currents output from the resistors are controlled by the resistor values as well as the 3 bit digital input which controls power supply connections to the current setting resistors [0050-0052]), summing said plurality of controlled column currents (controlled column current output from current setting resistors 540,542,544 are all connected and their currents combined on current line 526), and dividing the summed current between a plurality of row electrodes such that each row has a respective divided current (the column electrode simultaneously drives multiple rows [0008,0025] requiring current to split among the driven rows according to Kirchhoff's current law), the ratio of said divided currents being controlled by a controllable current mirror on the basis of an applied reference signal (the ratio of divided currents applied to the row electrodes to the summed current on the input current line 526 is controlled by the transistor sizes of transistors 522,524 which are in a current mirror configuration [0054] as well as the control signals connected to the gates of transistors 528,530,532 which control the initially supplied current to current input line 526 [abstract; 0021,0024,0028-0030,0034,0037,0050-0052]).

*Smith* does not expressly disclose driving a plurality of rows and a plurality of columns simultaneously thus does not expressly teach simultaneously driving a plurality of said column electrodes. However, *Smith* does teach driving a plurality of column electrodes and a row electrode simultaneously [0008, 0025]

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as well as interchanging the row and column circuitry to drive a plurality of row electrodes and a column electrode simultaneously [0008, 0025].

*Nimmer* discloses a passive matrix organic light emitting display with a plurality of pixels [abstract] and simultaneously driving a plurality of row electrodes at the same time as the driving of a plurality of column electrodes (plurality or all column electrodes and a plurality or all row electrodes can be driven simultaneously [abstract; col. 2, lines 10-14; col. 5, lines 29-44]) and that column currents are divided between multiple row electrodes (with *Nimmer's* teaching of multiple row activation simultaneously, the sum of currents presented on the column electrodes are dispersed across multiple row electrodes in accordance with Kirchhoff's Current Law. Thus when increasing the number of active row electrodes, the input current from the column electrodes are split and/or rationed out such that each row electrode only receives part of the initially supplied current).

At the time of invention, it would have been obvious for a person of ordinary skill in the art to have driven a plurality of row electrode simultaneously as taught by *Nimmer* in the display driving of *Smith*. The suggestion/motivation would have been to provide the ability of lighting more of the display at one time [col. 5, lines 46-48].

Claim 9 is broad that as currently amended further allows for the following alternate interpretation.

*Smith* (Figs. 2a and 4-6c) discloses a method of controlled current driving of a passive matrix organic light emitting diode (OLED) display (controllable current generator provides controlled variable currents for driving the passive matrix OLED [abstract, 0021]), said display having a matrix of OLED pixels addressed by row and column electrodes (passive matrix 502 of OLEDs 312 driven by column lines 508 and row lines 512 [0049, 0050, 0053]; Figs. 3 and 5), the method comprising simultaneously driving a plurality of said column electrodes with a plurality of controlled column currents (current generator provides controlled variable currents to all column lines of the display simultaneously [abstract, 0021, 0008, 0025]), and a row electrode with a controlled row current at the same time (row drive circuitry provides signals for row lines according to the controlling current sources 548a-b via controlled switches 510a-b [0055]; Fig. 5; during a row selection, all column electrodes are driven with their respective currents in parallel to light all pixels of the row simultaneously [0008, 0025]) summing said plurality of controlled column currents controlled by a controllable current mirror on the basis of an applied reference signal (the current mirrored by current mirror 522,524 [0054] is controlled by control signals connected to the gates of transistors 528,530,532 which control the initially supplied current to current input line 526 [abstract; 0021,0024,0028-0030,0034,0037,0050-0052] and in the simultaneous column

driving [0008,0010,0025] plural column electrodes each provide current to a row electrode thus summing the provided currents on the row electrode).

*Smith* does not expressly disclose simultaneously driving the plurality of row electrodes at the same time as the driving of the plurality of column electrodes or that a sum of column currents is divided between multiple row electrodes. However, it is noted that *Smith* does disclose the driving of a plurality of column electrodes at the same time as a row electrode ([0008, 0025]) and it is further disclosed that the row and column circuitry can be exchanged in order to drive a plurality of row electrodes simultaneously ([0008, 0025]).

*Nimmer* discloses a passive matrix organic light emitting display with a plurality of pixels [abstract] and simultaneously driving a plurality of row electrodes at the same time as the driving of a plurality of column electrodes (plurality or all column electrodes and a plurality or all row electrodes can be driven simultaneously [abstract; col. 2, lines 10-14; col. 5, lines 29-44]) and that a sum of column currents is divided between multiple row electrodes (with *Nimmer's* teaching of multiple row activation simultaneously, the sum of currents presented on the column electrodes are dispersed across multiple row electrodes in accordance with Kirchhoff's Current Law. Thus when increasing the number of active row electrodes, the input current from the column electrodes are split and/or rationed out such that each row electrode only receives part of the initially supplied current).

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At the time of invention, it would have been obvious for a person of ordinary skill in the art to have driven a plurality of row electrode simultaneously as taught by *Nimmer* in the display driving of *Smith*. The suggestion/motivation would have been to provide the ability of lighting more of the display at one time [col. 5, lines 46-48].

#### ***Allowable Subject Matter***

4. Claims 1-8 are allowed.

#### ***Response to Arguments***

6. Applicant's arguments filed 6 April 2010 have been fully considered but they are not persuasive.

- a. Applicant submitted that *Nimmer* discloses “activating row electrodes by multiplexing instead of dividing the summed current between a plurality of row electrodes such that each row has a respective divided current”.

*Nimmer* discloses a passive matrix organic light emitting display with a plurality of pixels [abstract] and simultaneously driving a plurality of row electrodes at the same time as the driving of a plurality of column electrodes (plurality or all column electrodes and a plurality or all row electrodes can be driven simultaneously [abstract; col. 2, lines 10-14; col. 5, lines 29-44]) and that a sum of column currents is divided between multiple row electrodes (with *Nimmer's* teaching of multiple row activation simultaneously, the sum of currents

presented on the column electrodes are dispersed across multiple row electrodes in accordance with Kirchhoff's Current Law. Thus when increasing the number of active row electrodes, the input current from the column electrodes are split and/or rationed out such that each row electrode only receives part of the initially supplied current). While *Nimmer* discloses that row drivers may be "multi-plexed" during a single duty cycle as state by the Applicant, this is not a requirement. It is a possible method just as the Applicant discloses multi-plexing is a possible method for the instant application [0031-0032,0085,0103-0104,0112].

b. Applicant further submits that "the current mirror of Smith does not appear to be controllable". Examiner respectfully disagrees. *Smith* teaches the output current of the current mirror relative to input current 526 is controlled by the transistor sizes of transistors 522,524 forming the current mirror [0054] and further that the control signals connected to the gates of transistors 528,530,532 control the initially supplied current to current input line 526 [0050-0052].

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

a. *Lai* (US 6,501,226), *Haruna* (US 2006/0125732), and *Ochi* (US 6,376,994) teach passive matrix organic light emitting displays with multi-line selection (MLS) and multi-line addressing (MLA), including the summation of drive currents on a row electrode, to drive multiple rows or columns simultaneously.

b. *Abe* (US 2003/0107542 and 2005/0280611) and *Sempel* (Us 2006/0191178) teach passive matrix organic light emitting displays with a summation of a plurality of column currents for driving the pixels of a row.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert M. Stone whose telephone number is (571)270-5310. The examiner can normally be reached on Monday-Friday 9 A.M. - 4:30 P.M. E.S.T. (alternate Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh D. Nguyen can be reached on (571)272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert M Stone/  
Examiner, Art Unit 2629

/Chanh Nguyen/  
Supervisory Patent Examiner, Art  
Unit 2629